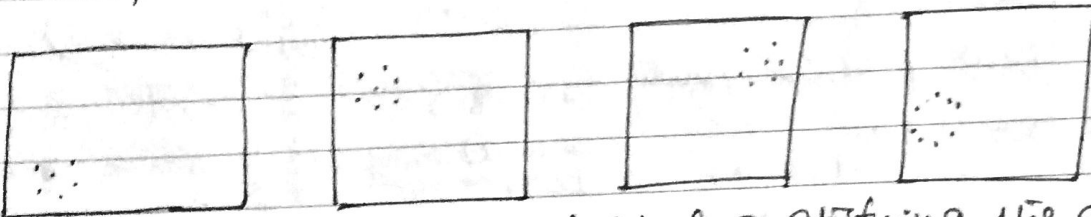


ENSEMBLE:-

Gibbs introduces the concept of statistical ensemble to describe a microscopic system. A state of the gas under consideration can be represented by $3N$ canonical coordinates q_1, q_2, \dots, q_{3N} and their conjugate momenta p_1, p_2, \dots, p_{3N} . The $6N$ -dimensional space is called the phase space or Γ -space. A point in phase space represents a microscopic state of a system. It is obvious that a very large no. of microstates states of the gas corresponds to a same macroscopic condition of the gas.



"Large No. of microscopic states satisfying the same state macroscopic condition."

Though in macroscopic measurements we would not be able to distinguish between two gases existing in different states, the states are microscopically different. Such large collection of identical non-interacting system satisfying same macroscopic conditions are called Ensembles.

